

BRIEF DESCRIPTION OF THE DRAWINGS

[0019] FIGS. 1 and 2 are views illustrating a display system including a plurality of display devices according to an exemplary embodiment;

[0020] FIG. 3 is a view illustrating a display system according to another exemplary embodiment;

[0021] FIG. 4 is a schematic block diagram illustrating a configuration of a display device according to an exemplary embodiment;

[0022] FIG. 5 is a block diagram illustrating a detailed configuration of a display illustrated in FIG. 4;

[0023] FIG. 6 is a view illustrating an operation principle of an LCD panel;

[0024] FIGS. 7A and 7B are views illustrating an operation of a display device according to an exemplary embodiment;

[0025] FIGS. 8A and 8B are views illustrating an operation of a display device;

[0026] FIGS. 9A and 9B are views illustrating an operation of a display device according to an exemplary embodiment; and

[0027] FIG. 10 is a flow chart illustrating a display method of a display device according to an exemplary embodiment.

DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS

[0028] Certain exemplary embodiments are described in greater detail below with reference to the accompanying drawings. In the following description, if it is determined that a specific description on a known function or element may obscure the gist of the present disclosure unnecessarily, the specific description is omitted. The terms described in the disclosure are terms which are defined with a consideration of functions disclosed in the disclosure, and the terms may vary according to a user, an operator or a practice. Therefore, the terms in the disclosure should be defined based on the overall contents of the disclosure.

[0029] Expressions including ordinal numbers such as “first”, “second”, and so on as used herein may be used for describing a variety of elements, but the elements should not be limited by such expressions. The expressions mentioned above are used with a sole purpose of distinguishing one element from another. For example, without departing from the scope of the present disclosure, a “first element” may be named a “second element”, or similarly, the “second element” may be named the “first element.” The term “and/or” includes a combination of a plurality of related and described items or one item between or among a plurality of related and described items.

[0030] The terms in the disclosure are used for explaining exemplary embodiments and the terms are not intended to limit and/or restrict the disclosure. A singular expression used herein includes a plural expression, unless specified otherwise in the context. Terms “include” and “have” in the exemplary embodiments are to designate an existence of a feature, a number, a stage, an operation, a constituent element, a component described in the specification or a combination of thereof. The terms should not be understood to previously exclude a further existence of a feature, a number, a stage, an operation, a constituent element, a component or more than one different from the feature, the number, the stage, the operation, the constituent element or the component, or an additional possibility.

[0031] FIG. 1 is a view for illustrating a display system 1000 including a plurality of display devices according to an exemplary embodiment.

[0032] The display system 1000 may include a plurality of display devices 100-1, 100-2, 100-3, 100-4, and each of the plurality of display devices may display an identical image at the same time or may display different images in order to make an entire image.

[0033] Each of the display devices 100-1, 100-2, 100-3, 100-4 composing the display system 1000 may divide an image into an upper area and a lower area. An upper image may be displayed on the upper area in a first scanning direction (for example, from the top to the bottom) and a lower image may be displayed on the lower area in a second scanning direction (for example, from the bottom to the top) which is opposite to the first scanning direction.

[0034] Each of the display devices 100-1, 100-2, 100-3, 100-4 may alternately process an image data at the upper area and the lower area of a panel. For example, when the panel of the display device 100 has n pixel lines and the pixel lines from the uppermost line to the lowermost line are expressed as a first line to an n line, the display device 100 may process a data in order of the first line, the n line, a second line and an n-1 line. In other words, the data processing starts from the outermost lines (the top and the bottom) and the data processing ends at the center of the panel.

[0035] FIG. 1 illustrates that one image is displayed by four display devices 100-1, 100-2, 100-3, 100-4 simultaneously. For another example, four displays 100-1, 100-2, 100-3, 100-4 may respectively display one image at the same time. The source of each image displayed on the display devices 100-1, 100-2, 100-3, 100-4 may be one of the four display devices 100-1, 100-2, 100-3, 100-4.

[0036] For example, a first display device 100-1 may consecutively transmit an image stored in the first display device 100-1 to a second display device 100-2, a third display device 100-3 and a fourth display device 100-4 so that an entire image to be displayed on the four display devices 100-1, 100-2, 100-3, 100-4.

[0037] When the display system 1000 of the chain configuration is used, there are advantages of unification and simplification on a circuit structure and cost saving effect comparing to a parallel structure. However, because a delay occurs when an image signal passes each of the display devices, it may take different time for the display devices 100-1, 100-2, 100-3, 100-4 composing the display system 1000 to display images.

[0038] However, according to an exemplary embodiment, the display system 1000 may set respectively different delay times in the display devices 100-1, 100-2, 100-3, 100-4 and the delay problem which occurs when an image signal passes the display devices 100-1, 100-2, 100-3, 100-4 may be resolved. In other words, by setting different delay time for each of the display devices 100-1, 100-2, 100-3, 100-4 and controlling images to be displayed after each of the delay times passes, the four display devices 100-1, 100-2, 100-3, 100-4 may display an entire frame at the same time. Therefore, time for images displayed on the four display devices 100-1, 100-2, 100-3, 100-4 comprising the display system 1000 may be synchronized.

[0039] Meanwhile, even though the explanation is based on the limitation that the four display devices 100-1, 100-2, 100-3, 100-4 are used, it is only for a convenience of the